## **ESA-103 Final Public Report**

**Introduction:** This assessment was performed using personnel and facilities of the Dow Chemical Oxide 2 facility in Hahnville, LA.

**Objective of ESA:** The overall goal of this ESA was to recommend natural gas savings as high as possible, which will reduce the overall operating cost.

Focus of Assessment: Steam and steam systems.

**Approach for ESA**: The approach was to install SSAT model on everyone's (six attendees) computer—model the Oxide 2 facility and run all of the potential projects, estimating the potential implementation cost, where appropriate.

## **General Observations of Potential Opportunities:**

- The utility cost used for the ESA for 2006 is \$ 10.00/MMBtu and 7.8 cents/kWh.
- The ESA specialist performing this assessment really enjoyed this assessment. It is great to be with personnel all geared and trained in energy savings. It is a corporate policy to improve energy intensity by 15 percent in the next five years.
- Note what you would expect would be Near Term, Medium Term, Long Term opportunities. See definitions below:
  - □ Near term opportunities would include actions that could be taken as improvements in operating practices, maintenance of equipment or relatively low cost actions or equipment purchases.
    - Improving steam system insulation saves \$811,000 in natural gas usage per year. This is based upon reducing the insulation loss from 1.0% of the total heat distributed by the headers to 0.1%. (project #18—insulation improvement). Natural gas savings would be 81,100 MMBtu/year.
  - Medium term opportunities may require purchase of additional equipment and/or a shutdown of either the system or subsystems
    - 1. Repair current steam leaks. This will save \$10,000 in natural gas per year. This represents repairing a total of 16 leaks (1—HP, 5—MP, 10—LP). (project #17—repair steam leaks). Natural gas savings 1,000 MMBtu/year.
  - □ Long term opportunities would require testing of new technology and confirmation of performance of these technologies under the plant operating conditions with economic justification to meet the corporate investment criteria or require more global changes or operating procedural changes within the plant.
    - 1. Effectively reduce boiler blowdown rate by using higher quality boiler feedwater. This would be implemented using a plant-wide change over to higher quality boiler feedwater provided by Energy Systems. By assuming we will be able to reduce the current blowdown rate from ~2 percent to 1 percent, a savings of \$132,000 per year in natural gas usage can be achieved. (project #4—improve boiler blowdown rate). This is considered long term because the change will be incorporated plant-wide (Oxide 1, Oxide 2, and Energy Systems).
    - 2. Repair trace-line leaks or reduce the operating time of trace steam lines per year to save at most \$27,000 per year in natural gas. However, we are not recommending this at this time because the implementation cost is very large because it involves new equipment and plantwide operating procedure changes. (project #1—Steam usage reduction) At the present time, these steam trace lines are operated about six months per year. To change this procedure will require policy change, training and perhaps new equipment. This is therefore considered long term.
- Estimate, if possible, % plant natural gas savings from a) Near Term opportunities; b) Medium Term opportunities, c) Long Term opportunities. Near term—1.59%

  Medium term—0.02%

## **Management Support and Comments:**

The corporation has set clear targets for reducing energy consumption over the next ten years. To accomplish this, both site and business Energy Efficiency and Conservation Teams have been chartered to identify and implement energy conservation projects. This assessment was endorsed as a structured approach to identify potential steam savings.

**DOE Contact at Plant/Company:** (who DOE would contact for follow-up regarding progress in implementing ESA results...)

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